

**Biology 102 Laboratory Report Assessment Rubric**  
**Scientific Investigation and Experimentation**

<b>Level</b>	<b>1. Introduction</b> <i>What is the central research question? What is the purpose of the study?</i>	<b>2. Materials and Methods</b> <i>What is the experimental approach used in this investigation?</i>	<b>3. Results (data and analysis)</b> <i>Does the report clearly describe what was found in the investigation?</i>	<b>4. Discussion and Conclusion</b> <i>Do the results address the central research question/hypothesis in the study?</i>	<b>5. Quality of Writing</b> <i>Is the report informative and easy to read? Is the writing clear and logical?</i>
5	Report provides a brief background (relevant theory and facts) of the study. The scientific question and hypothesis are clearly stated. Predicted results are based on relevant scientific knowledge. Alternative or null hypotheses are also considered.	Brief description of the main organism, chemicals, and/or instruments used in the experiment. Clear and succinct description of the procedure used. Explanation of how variables are controlled, clearly distinguishing dependent and independent variables.	Data and analysis (including diagrams, graphs, and calculations) are well organized. Provides correct interpretation of graphs and clear verbal description of results. Use appropriate graphs to identify trends. Charts and graphs are clearly labeled and include the proper units.	Logical interpretation of what was found in the results and how the results address the central research question. Convincing interpretation, citing evidence. Analysis includes an evaluation of the accuracy and reproducibility of the results. Significance of study in relation to existing scientific knowledge is explained.	Report is clearly written, logical and concise with correct usage of language. References in the text of the report are appropriately used and cited in proper format. Literature cited section includes only those references cited in the text and all references are in the proper format.
4	Statement of the scientific question and hypothesis is clear. The background and predicted results of the study does not refer to all of the relevant theories and facts.	Experimental materials, equipment and procedure are clearly described. No discussion on controlling variables.	Data and analysis are organized, but not enough data is included to address the research question. . Uses appropriate graphs to identify trends. Charts and graphs are clearly labeled and include the proper units.	Discussion of results clearly addresses the research question and hypothesis. Uses evidence and logic in arriving at the conclusion. Has clear interpretation of data. Lacks a discussion of the accuracy and reproducibility of the results.	Report is clearly written employing correct usage of language.
3	Background incomplete. Scientific question and hypothesis not clearly stated. Stated hypothesis is not explicitly tested by experiments. Prediction of results is not based on relevant knowledge of subject.	Experimental procedure is summarized with a listing of materials. No discussion on controlling variables.	Data are presented in charts and graphs, but not enough data is included to address the research question. Some graphs are not labeled.	Discussion of results shows understanding of the study, but not its significance. Analysis of results is incomplete. Conclusions are not based on evidence and logic.	Report is occasionally disjointed. Language usage is generally correct.
2	The research question and hypothesis is poorly stated. Stated hypothesis is not testable. The importance of the investigation is nor apparent.	Description of the research procedure is too sketchy. Essential materials missing, list of materials includes items that were not used in the investigation. Important elements are missing.	Data and analysis are not clearly presented. Graphs and tables are incomplete or inappropriate (e.g. using a bar graph instead of a line graph, confusing dependent and independent variables)	Discussion does not clearly address the research question and how the results lead to the conclusion. There is no analysis of results. Does not distinguish between evidence and inference.	Writing sometimes lacks clarity. Language usage does not always follow convention.
1	Statement of scientific question and hypothesis shows a lack of understanding of the investigation.	One cannot follow the procedure described.	Diagrams, tables, graphs are confusing or incomplete.	Shows lack of understanding of the investigation and the scientific concepts underlying it.	Report is difficult to follow with misspelled words and misuse of scientific terms.